

AMENDMENTS TO THE SPECIFICATION

Please delete the Sequence Listing associated with this application and enter the Substitute Sequence Listing filed herewith. Please renumber the pages of the specification appropriately.

Please delete the paragraph on page 4, line 24, through page 5, line 4, and replace it with the following paragraph:

FIG. 1 shows an amino acid sequence (SEQ ID NO: 1) of the carbohydrase derived from *Lipomyces starkeyi* (LSA) according to the present invention and a 1946 bp nucleotide sequence (SEQ ID NO: 2) encoding the amino acid sequence, wherein a PCR primer, analyzed through the N-terminal amino acid sequencing of a mature protein, for cloning the mature protein in a vector corresponds to underlined normal characters, a splicing site for a signal peptide is indicated by the arrow, and conserved regions of α -amylase are expressed as underlined bold characters;

Please delete the paragraph on page 11, lines 4-14, and replace it with the following paragraph:

After being purified, the carbohydrase (LSA, having dextranase and amylase activity) obtained from *L. starkeyi* was analyzed to the N-terminal amino acid sequence DXSTVTVLSSPETVT (SEQ ID NO: 5) (wherein X remained unrevealed). On the basis of the amino acid sequence TVTVLSSPE (SEQ ID NO: 6), an oligonucleotide, that is, a sense primer 1 (5'-TACAGTTACGGTCTTGTCCTCCCCTGA-3') (SEQ. ID. NO. 3) was designed. An antisense primer 2 (5'-CTCTACATGGAGCAGATTCCA-3') (SEQ. ID. NO. 4) was constructed.

The [[PCT]] PCR product obtained with the sense and antisense primers was found to have a size of about 2 kb as measured by electrophoresis.

Please delete the paragraph on page 11, line 26, to page 12, line 9, and replace it with the following paragraph:

A DNA fragments having the open leading frame of the gene *lsa* was obtained by PCR with a pair of primers: a sense primer 5'-TACAGTTACGGTCTTGTCCTCCCCTGA-3' (SEQ ID NO: 3) and an antisense primer 5'-CTCTACATGGAGCAGATTCCA-3' (SEQ ID NO: 4) which respectively correspond to N-terminal and C-terminal amino acid sequences of the protein showing dextranase and amylase characteristics. After being separated on agarose gel, the PCR product was purified with an AccPrepTM gel extraction kit (Bioneer, Korea) and ligated with pGEM-T easy vector (Promega, USA). Base sequencing was performed using ABI PRISM Cycle Sequencing Kit (Perkin Elmer Corp. USA) in a GeneAmp 9600 thermal cycler DNA sequencing system (Model 373-18, Applied Biosystems, USA).

Please delete the paragraph on page 16, lines 1-11, and replace it with the following paragraph:

After being purified, the carbohydrase (LSA) (having both dextranase and amylase activity) derived from *L. starkeyi* was analyzed to have an N-terminal amino acid sequence of DXSTVTVLSSPETVT (SEQ ID NO: 5) (X: an amino acid residue yet not revealed). On the basis of the amino acid sequence of TVTVLSSPE (SEQ ID NO: 6), a sense primer 1 (5'-TACAGTTACGGTCTTGTCCTCCCCTGA-3') (SEQ ID NO: 3) was designed and synthesized. Separately, an antisense primer 2 (5'-CTCTACATGGAGCAGATTCCA-3') (SEQ ID NO: 4) was constructed. Electrophoresis showed a 2 kb band for the PCR product. Amino acid and base sequencing results are given in FIG. 1 and SEQ. ID. Nos. 1 and 2.

Please delete the Table 1 header on page 17 and replace it with the following header:

TABLE 1 (discloses SEQ ID NOS: 7-82 by column, from left to right)

Please delete the paragraph on page 19, lines 3-16, and replace it with the following paragraph:

One intron, found between base 966 and 967 in the cDNA, consisting of 60 bases (5'-GTGGTATGTATCTAAGCATATTTGTAGCATTCTATCTTGGAAGTACCGGCCCTCAGTGC-3') (SEQ ID NO: 83) is present in the genomic DNA of LSA. The recombinant LSA prepared according to the present invention was found to differ in molecular weight from the LSA (about 100 kDa) of the mother cell (*Lipomyces starkeyi*) as measured by SDS-PAGE. This difference is believed to be due to the fact that the enzyme of the mother cell is glycosylated with glycoproteins produced in the yeast. In the case of the carbohydrolase of the mother cell, an anti-carbohydrolase antibody detected approximately 100 kDa (FIG. 2). Because it tends to aggregate with others, an active LSA enzyme, when not boiled, was found to be 200 kDa as measured by gel permeation chromatography.